

1 1. A method comprising:
2 forming a wafer with a microelectromechanical
3 switch defined on a first face;
4 forming a wafer with a film bulk acoustic
5 resonator on a first face; and
6 packaging said wafers in first face-to-first-face
7 alignment.

1 2. The method of claim 1 wherein packaging said
2 wafers in face-to-face alignment includes providing a
3 sealing material around the first faces of said wafers to
4 define a hermetically sealed chamber between said wafers.

1 3. The method of claim 2 including providing a third
2 wafer over a backside cavity in said wafer with a film bulk
3 acoustic resonator.

1 4. The method of claim 1 including providing a
2 conductive contact between an electrode on said film bulk
3 acoustic resonator and a contact on said
4 microelectromechanical switch.

1 5. The method of claim 1 including providing a
2 contact on the exterior of said packaged wafers through
3 said wafer with said film bulk acoustic resonator.

1 6. The method of claim 1 including providing a
2 contact on the exterior of said packaged wafers extending
3 through said wafer with said microelectromechanical switch.

1 7. The method of claim 1 including sawing through
2 said wafer with said film bulk acoustic resonator to make
3 contact with an electrode of said film bulk acoustic
4 resonator.

1 8. The method of claim 7 including making a tapered
2 saw cut to remove a portion of said wafer with said film
3 bulk acoustic resonator.

1 9. The method of claim 8 including coating said
2 tapered surface with a conductor to form an exterior
3 contact on said packaged wafers.

1 10. The method of claim 1 further including combining
2 said wafer with a microelectromechanical switch and the
3 wafer with a film bulk acoustic resonator wherein at least
4 one of said wafers has a pre-applied sealing material.

1 11. The method of claim 1 including combining said
2 wafer with a microelectromechanical switch and said wafer
3 with a film bulk acoustic resonator with at least one of
4 said wafers having a pre-applied conductive material to

5 form an electrical connection between said wafers when
6 combined.

1 12. A packaged electronic device comprising:
2 a microelectromechanical switch including a first
3 surface having a cantilevered switch element;
4 a film bulk acoustic resonator having a first
5 surface having upper and lower electrodes and a
6 piezoelectric film formed thereon;
7 said switch and said resonator arranged with said
8 first surfaces in opposition to one another; and
9 a sealing ring between said surfaces to define a
10 chamber between said switch and said resonator.

1 13. The device of claim 12 including electrical
2 contacts between said switch and said resonator extending
3 through said chamber.

1 14. The device of claim 12 wherein said resonator
2 includes a cavity in a second surface of said resonator,
3 said cavity being covered by a substrate.

1 15. The device of claim 12 including contacts
2 extending from the exterior of said device through said
3 resonator to contact at least one of said electrodes.

1 16. The device of claim 12 including contacts that
2 extend from the exterior of said device through said switch
3 to make electrical contact with said switch on its first
4 surface.

1 17. The device of claim 12 wherein said resonator has
2 tapered exterior conductive surfaces that make electrical
3 contact with said electrodes.

1 18. A semiconductor assembly comprising:
2 a first wafer including a microelectromechanical
3 switch formed thereon on a first face of said first wafer;
4 a second wafer with a film bulk acoustic
5 resonator formed on a first face of said second wafer; and
6 said wafers connected in first face-to-first face
7 alignment.

1 19. The assembly of claim 18 including a sealing
2 material around the first faces of said wafers to define a
3 hermetically sealed chamber between said wafers.

1 20. The assembly of claim 18 wherein said second
2 wafer includes a backside cavity and a third wafer formed
3 over said backside cavity.

1 21. The assembly of claim 18 including a conductive
2 contact extending between said film bulk acoustic resonator
3 and said microelectromechanical switch.

1 22. The assembly of claim 18 further including a
2 contact extending from the exterior of said assembly
3 through said wafer with said film bulk acoustic resonator
4 to make contact electrically with said film bulk acoustic
5 resonator.

1 23. The assembly of claim 18 including a contact on
2 the exterior of said assembly and extending through said
3 wafer with said microelectromechanical switch.

1 24. The assembly of claim 18 including a notch formed
2 in said film bulk acoustic resonator to enable electrical
3 connection from the outside world to said film bulk
4 acoustic resonator.